

# PATENT SPECIFICATION

(11) 1 233 945

## DRAWINGS ATTACHED

- 1 233 945
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## (54) IMPROVEMENTS IN OR RELATING TO THE CONSTRUCTION OF RESILIENT SEATING OR RECLINING SURFACES

(71) We, PROGRESS MERCANTILE COMPANY LIMITED, a British Company, of 246 Brixton Hill, London, S.W.2, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the construction of resilient seating or reclining surfaces of the kind in which resilient webbing strips are secured in tension between spaced frame members. Such a resilient seating or reclining surface will hereinafter be referred to as a resilient seating or reclining surface of the kind specified.

It is known to attach the ends of webbing strips to such frame members by means of clips secured to the strip ends and retained in slots in the frame members. Pins or nails driven through the frame and clips are sometimes employed to retain the clips in the frame slots. Alternatively the clips have been retained frictionally in the slots or by means of lips or grooves provided on or in the slot walls to engage the clips.

It is an object of the present invention generally to simplify and facilitate the attachment of webbing strips to frame members in the construction of resilient seating or reclining surfaces.

Accordingly the invention provides a method of attaching a resilient webbing strip end to a frame member in the construction of a resilient seating or reclining surface of the kind specified, in which the strip end is rigidly reinforced by a clip having a nose part provided with anti-slip projection means, the reinforced strip end is folded back over the adjoining portion of the strip, and the doubled strip length is entered fold first into a housing slot in the frame member so that the tension in the strip tends to tilt the reinforced strip end about the nose part of the clip into wedged binding relationship with the facing slot walls, the anti-slip projection means

engaging the adjacent facing slot wall to enhance the wedged binding relationship.

According to another aspect of the invention there is provided a reinforcing clip for use in the aforesaid method, which clip is substantially in the form of a channel member in which the webbing strip end can be secured, one channel member wall having an outwardly lipped edge operative to support the strip fold, and the external base surface of the channel member forming a nose part having external anti-slip projection means thereon.

According to a further aspect of the invention there is provided means for attaching a resilient webbing strip end to a frame member in the construction of a resilient seating or reclining surface of the kind specified, said means including a rigid reinforcing clip secured to the strip end and a housing slot formed longitudinally in the frame member, the dimensioning of said slot being such that a doubled over length of said strip, formed by folding back the reinforced strip end over the adjoining portion of the strip, can be inserted between said slot walls, and the said clip having a nose part provided with anti-slip projection means adapted to engage and bind against one of the said facing slot walls under the retractive pull imparted by the tension in the strip so that the reinforced strip end tends to tilt into a wedged position between the facing slot walls.

For a better understanding of the present invention and to show how the same may be carried into effect, reference will now be made, by way of example, to accompanying drawing, in which:

Figure 1 shows a perspective view of an open reinforcing clip according to the invention,

Figure 2 is a perspective view of the clip of Figure 1 from the end A in Figure 1,

Figure 3 is an end view of the clip of Figures 1 and 2 taken in the direction of

the arrow B in Figure 1.

Figure 4 is a perspective view of a clip of Figures 1 to 3 closed on an end of a partially represented resilient webbing strip, 5 and

Figures 5, 6 and 7 are end views of the clipped strip end of Figure 4 illustrating successive operations in the method of the invention of attaching the strip end to a 10 frame member which is partially shown in section in Figures 6 and 7.

The invention is described with reference to the accompanying drawing as applied to the construction of a resilient seating or reclining surface such as the seat or back of 15 an upholstered chair. Such a resilient surface basically is provided by strips of resilient webbing 1 secured in tension between a pair of spaced frame members 2 and 20 forms a support surface for a cushion or upholstery. These frame members 2, which conveniently are arranged in parallel coplanar spaced relationship, are preferably wooden bars each provided with a housing 25 slot or slots 3 formed longitudinally therein. The arrangement of the slotted frame members 2 is such that the slot opening or openings in one bar surface is or are directed towards the slot opening or openings in the 30 opposite bar surface and the slots are preferably substantially rectangular in section with substantially parallel plane walls as shown in Figures 6 and 7.

The resilient webbing strips 1 which are 35 to be secured in tension between the slotted frame members 2 have their ends retained within rigid reinforcing clips 4. Each clip 4, which is conveniently made of metal, is substantially in the form of a channel member in which the webbing strip end is 40 inserted and retained and preferably has a length which corresponds to the strip end width. To retain the inserted strip end in the clip 4 it is merely necessary to pinch 45 the channel walls 4a and 4b tightly against the strip and to enhance retention, one channel member wall of the clip 4, in this embodiment the wall 4a preferably is provided with means for gripping the strip 1. 50 Such gripping means conveniently take the form of teeth 5 stamped or pressed out of the wall 4a, which teeth are arranged to engage the strip 1 inwardly of the channel member walls and co-operate with receiving apertures 6 formed in the other wall 55 4b of the channel member. For reasons which will be later apparent one channel member wall (in this case the wall 4a) has an outwardly lipped edge 7, and the external base surface 4c of the channel member forms a nose part having anti-slip projection means thereon. These anti-slip projection means are also conveniently in the 60 form of teeth 8 stamped or pressed out of the clip.

For the purpose of attaching a resilient webbing strip 1 between parallel slotted frame members 2, one such clip 4 is secured to each end of the strip 1 in the manner described so that the channel member external base surface 4c forming the clip nose 70 part is at the leading end of the strip (see Figures 4 and 5). The strip length is chosen to provide a degree of tension in the strip when the latter is secured between the slotted 75 frame members 2. To attach the clipped or reinforced strip end shown in Figures 4 and 5 to the associated slotted frame member 2, the reinforced strip end is first folded back over the adjoining portion of the strip as 80 shown in Figure 6 to form a doubled over length of strip in which the strip fold 1a is supported by the outwardly lipped edge 7 of the clip 4. The doubled strip length of the stretched strip is then entered fold 85 first into the housing slot 3 in the frame member 2 so that tension in the strip tends to tilt the reinforced strip end about the nose part of the clip 4 into wedged binding relationship with the facing slot walls 90 3a and 3b as shown in Figure 7. The dimensioning of the clip 4 and the distance between facing walls 3a and 3b of the slot 3 are chosen to afford this wedged binding relationship whilst permitting insertion of 95 the reinforced strip end into the slot.

The retractive pull T (see Figure 7) imparted to the reinforced strip end by the strip tension thus has the effect of tilting the reinforced strip end in the slot 3 and 100 of causing the teeth 8 of the anti-slip projection means on the base or nose part 4c of the clip to bite into the adjacent facing slot wall 3b. As these teeth 8 bite into the slot wall 3b to prevent the clip nose part 105 from moving out of the slot 3, the clip tilts about the nose part so that the outwardly lipped edge 7 of the clip forces or wedges the strip fold 1a against the other facing slot wall 3a. 110

With both ends of the strip attached in the aforesaid manner to respective slotted frame members 2, increased tension on the strip resulting from operative loads being applied thereto, merely has the effect of 115 increasing the tilting force acting on each clip 4. Such an increase in the tilting force serves to drive the teeth 8 on the clip nose part further into the slot wall 3b and causes the lipped edge 7 of the clip to wedge the 120 strip fold 1a tighter against the facing slot wall 3a, thereby increasing wedged binding of the reinforced strip end in the slot 3.

In the described embodiment, strip tension T acts in a direction approximately 125 perpendicular to the slotted surface of the particular frame members 2, which in this case means that the direction is approximately parallel to the facing side walls 3a and 3b of the slots. This has the advantage 130

that when the doubled back strip end is inserted in the housing slot 3 with the clip 4 underlying the strip 1, no evidence of the attachment means is visible from above the resilient surface. Also as no pins or nails are employed in attaching the strips 1 to the frame members 2, no evidence of the attachment means utilised is visible on the non-slotted surfaces of the frame members 2.

It is of course to be understood that the shape of the slots 3 or the shape or form of the clip 4 and projecting means could be modified to facilitate the manufacture thereof.

#### WHAT WE CLAIM IS:—

1. A method of attaching a resilient webbing strip end to a frame member in the construction of a resilient seating or reclining surface of the kind specified, in which the strip end is rigidly reinforced by a clip having a nose part provided with anti-slip projection means, the reinforced strip end is folded back over the adjoining portion of the strip, and the doubled strip length is entered fold first into a housing slot in the frame member so that the tension in the strip tends to tilt the reinforced strip end about the nose part of the clip into wedged binding relationship with the facing slot walls, the anti-slip projection means engaging the adjacent facing slot wall to enhance the wedged binding relationship.

2. A method according to Claim 1 in which the strip end is rigidly reinforced by the clip by first entering the strip end between two walls of the clip and then pinching said two walls tightly against the strip.

3. A method according to Claim 2 in which pinching the said two walls of the clip tightly against the strip causes gripping means provided on one of said two walls to engage the strip to enhance retention of the strip end in the clip.

4. A reinforcing clip for use in the method according to Claim 1, which clip is substantially in the form of a channel member in which the webbing strip end can be secured, one channel member wall having an outwardly lipped edge operative to support the strip fold, and the external base surface of the channel member forming a nose part having external anti-slip projection means thereon.

5. A reinforcing clip according to Claim 4, wherein the inner surface of the channel member wall having the outwardly lipped edge is provided with means for gripping the strip.

6. A reinforcing clip according to Claim 5 wherein said gripping means is in the form of teeth stamped or pressed out of the channel member wall having the outwardly lipped edge, to project inwardly of said channel member wall.

7. A reinforcing clip according to Claim 6 including apertures formed in an unlippped channel member wall for receiving the teeth of the gripping means.

8. A reinforcing clip according to any one of Claims 4 to 7 wherein the anti-slip projection means are in the form of teeth stamped or pressed out of the base surface of the channel member so as to stand out externally of the channel member.

9. Means for attaching a resilient webbing strip end to a frame member in the construction of a resilient seating or reclining surface of the kind specified, said means including a rigid reinforcing clip secured to the strip end and a housing slot formed longitudinally in the frame member, the dimensioning of said clip and the distance between facing walls of said slot being such that a doubled over length of said strip, formed by folding back the reinforced strip end over the adjoining portion of the strip, can be inserted between said slot walls, and the said clip having a nose part provided with anti-slip projection means adapted to engage and bind against one of the said facing slot walls under the retractive pull imparted by the tension in the strip so that the reinforced strip end tends to tilt into a wedged position between the facing slot walls.

10. Means for attaching a resilient webbing strip end to a frame member according to Claim 9 wherein the housing slot is substantially rectangular in section with substantially parallel plane walls.

11. A method of attaching a resilient webbing strip end to a frame member in the construction of a resilient seating or reclining surface of the kind specified, substantially as hereinbefore described with reference to the accompanying drawing.

12. A reinforcing clip for use in the method according to Claim 1 substantially as hereinbefore described and as shown in the accompanying drawing.

13. Means for attaching a resilient webbing strip end to a frame member in the construction of a resilient seating or reclining surface of the kind specified, substantially as hereinbefore described and as shown in the accompanying drawing.

14. A resilient seating or reclining surface having resilient webbing strips secured in tension between spaced slotted frames, substantially as hereinbefore described with reference to the accompanying drawing.

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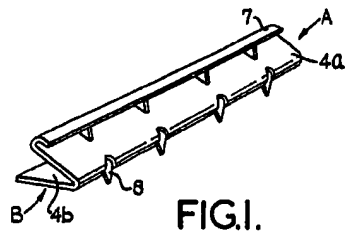


FIG. 1.

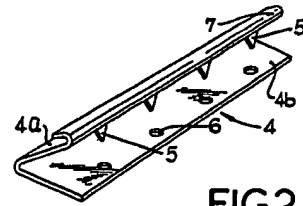


FIG. 2.

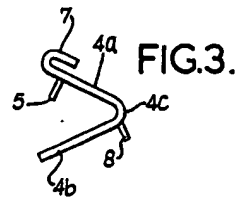


FIG. 3.

FIG. 4.

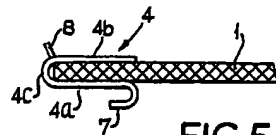
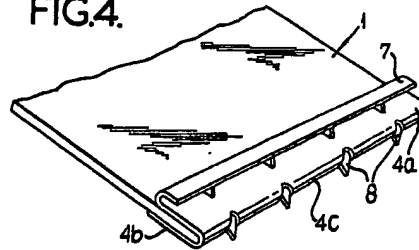


FIG. 5.

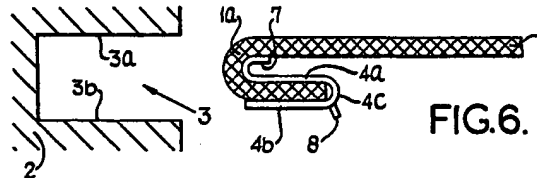


FIG. 6.

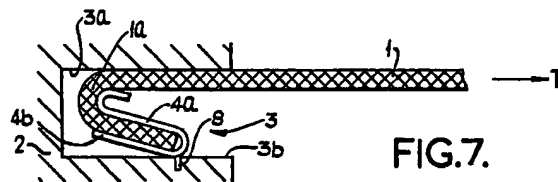


FIG. 7.